ABSTRACT

The piezoelectric/electrostrictive element includes: a substantially trapezoidal laminate having narrower and wider surfaces lying substantially in parallel to each other and first and second surfaces opposed to each other between the narrower and wider surfaces, the first and second surfaces being inclined at given angles to one of the narrower and wider surfaces, said laminate being made up of a plurality of piezoelectric/electrostrictive layers and a plurality of internal electrodes each of which is disposed between adjacent two of the piezoelectric/electrostrictive layers, the internal electrodes being broken up into a first and a second group, each of the first group internal electrodes lying over one of the second group internal electrodes through one of the piezoelectric/electrostrictive layers; a first external electrode formed on the first surface of said laminate, said first external electrodes being coupled to the first group internal electrodes; and a second external electrode formed on the second surface of said laminate, said second external electrodes being coupled to the second group internal electrodes. Since it is of a substantially trapezoidal shape which decreases in width from one of the bottom surfaces to the other bottom surface, the angle which the slant surfaces of both sides make with the other bottom surface is obtuse, thus resulting in an increase in strength of a ridge portion (a corner) defined by the other bottom surface and the slant surfaces. When the other bottom surface of the piezoelectric/electrostrictive element is

secured on a movable plate (diaphragm) by adhesive, a recess-shaped (*V*-groove shaped) gap defined by the movable plate and the slant surfaces of both the sides of the piezoelectric/electrostrictive element can be filled with the adhesive, thereby resulting in a further increase in force (bonding strength) which secures the piezoelectric/electrostrictive element to the movable plate. The existence of the adhesive in the recess-shaped gap offers the effect of avoiding removal of the piezoelectric/electrostrictive element from the movable plate even if the stress arising from a difference in thermal expansion between the piezoelectric/electrostrictive element and the movable plate is produced.